

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

Status of the Claims

Claims 1, 3 and 5-19 are pending. Claims 2 and 4 have been canceled without prejudice or disclaimer of the subject matter contained therein. Claims 1, 15 and 16 have been amended. Support for the amendments to claims 1, 15 and 16 can be found, at least, in claim 4 of the Applicant's original application that was filed on June 9, 2006. No new matter is added.

Applicants appreciatively acknowledge the Examiner's indication that claim 13 contains allowable subject matter and would be allowable if rewritten to be in independent form to include all the features of its base and any intervening claims.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-6, 8-12, and 14-19 stand rejected under 35 U.S.C § 103(a) as being unpatentable over U.S. Patent No. 6,455,340 of Chua et al. ("Chua") in view of U.S. Patent No. 6,740,604 of Kelly et al. ("Kelly"). Claim 7 stands rejected under 35 U.S.C § 103(a) as being unpatentable over Chua in view of Kelly and further in view of U.S. patent No. 6,447,604 of Flynn et al. ("Flynn"). Claims 2 and 4 have been canceled, thus, rendering the rejection of claims 2 and 4 moot.

Chua describes a method for fabricating nitride based semiconductor structures. Chua discloses releasing nitrogen from an InGaN layer using a laser beam. See Chua, column 6, lines 14-

23. Kelly describes a method for separating a semiconductor layer from a substrate. Kelly describes initiating the formation of nitrogen gas by heating a layer through the use of light pulses. See Kelly, column 3, lines 54-64.

The Examiner contends that Chua describes growing a fourth nitride semiconductor epitaxial layer on the third nitride semiconductor epitaxial layer *after releasing nitrogen* from the second nitride semiconductor epitaxial layer. In reference to Chua, the Examiner states that the second Distributed Bragg Reflector ("DBR") 142, which can be formed of alternating GaN/AlGaIn layers, is equivalent to the fourth nitride semiconductor epitaxial layer of amended claim 1. Chua, column 7, lines 1-7. Applicant respectfully disagrees. The second DBR 142 of Chua is not equivalent to the fourth nitride semiconductor layer of amended claim 1 because the second DBR 142 is not formed after releasing the nitrogen of the InGaIn layer 106, which the Examiner equates to the second semiconductor epitaxial layer of claim 1. Rather, the second DBR 142 of Chua is formed after the sapphire substrate 100, the gallium nitride layers 102 and 104, and the InGaIn layer 106 are separated from the semiconductor structure by a laser beam. Chua, column 6, lines 14-29. Kelly also fails to describe those features demonstrated to be missing from Chua.

Amended claim 1 recites a method for growing a nitride semiconductor epitaxial layer that includes a step of releasing nitrogen from a second nitride semiconductor epitaxial layer by increasing a temperature of the first, second and third nitride semiconductor epitaxial layers to a specified temperature. Claim 1 has been amended to further disclose "a fourth step of growing a fourth nitride semiconductor epitaxial layer on the third nitride semiconductor epitaxial layer *after releasing nitrogen* from the second nitride semiconductor epitaxial layer." Emphasis added.

Currently amended claim 1 discloses the elements of canceled claim 4. Claims 15 and 16 have also been amended to include the subject matter of canceled claim 4.

The purpose of converting the second semiconductor epitaxial layer into a metal layer by releasing nitrogen is to reduce stresses associated with growing the fourth semiconductor epitaxial layer on the third nitride semiconductor epitaxial layer. See Applicants Published Specification, paragraph 28. By reducing stresses, the metal layer also reduces warpage of the fourth nitride semiconductor epitaxial layer or warpage of other nitride semiconductor epitaxial layers grown on the fourth layer. See Applicants' Published Specification, paragraph 28. In contrast, Chua discloses that the nitrogen is released from the InGaN 106 layer after seven additional nitride layers, a first distributed Bragg reflector, a gold layer and a silicon substrate are grown on the InGaN layer. Chua, column 5, lines 11-58. As such, the nitrogen is released from the InGaN layer after the growing of subsequent nitride layers and does not reduce the stresses on and warpage of the subsequent nitride layers. Due to the fact that the purpose of releasing the nitrogen from the InGaN layer in Chua is different from the purpose of releasing the nitrogen from the second semiconductor epitaxial layer of the present invention, Chua teaches away from the invention of amended claim 1. Thus, a person of ordinary skill in the art at the time of the present invention would not be motivated to combine Chua and Kelly to arrive at amended claims 1, 15 and 16.

For at least the above-argued reasons, Applicants submit that amended independent claims 1, 15 and 16 are not obvious in view Chua and Kelly, and stand in condition for allowance.

With regard to claim 7, Flynn fails to describe those features demonstrated to be missing from Chua and Kelly. As claims 3, 5-12 and 14 each depend from allowable independent claim 1,

Applicants further submits that dependent claims 3, 5-12 and 14 are also allowable for at least this reason. As claims 17-19 each depend from allowable claim 16, Applicant further submits that dependent claims 17-19 are also allowable for at least this reason.

Reconsideration and withdrawal of the respective rejections of claims 1, 3, and 5-19 under 35 U.S.C. § 103(a) based on respective rejections of Chua, Kelly and Flynn is respectfully requested.

CONCLUSION

Each and every point raised in the Final Office Action mailed December 8, 2009 has been addressed on the basis of the above amendments and/or remarks.

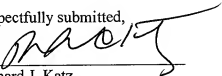
In view of the foregoing it is believed that claims 1, 3 and 5-19 are in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

The Commissioner is hereby authorized to charge any unpaid fees deemed required in connection with this submission, or to credit any overpayment, to Deposit Account No. 04-0100.

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Respectfully submitted,

By 

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